MARCHING UNDER DARKENING SKIES

The American Military and the Impending Urban Operations Threat

Russell W. Glenn

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PREFACE

Contemporary international and domestic security environments increasingly demand United States armed services' and unified commands' commitment to military operations on urbanized terrain (MOUT). The nation's soldiers and marines have been fighting in cities for much of the nation's history, but there is evidence that traditional definitions of success under such conditions may no longer apply. Success in accomplishing the assigned military mission can fall short of national political objectives if the cost of that accomplishment includes too great a loss of American or noncombatant life. This report provides an analysis of the U.S. Army's readiness to undertake modern MOUT missions; it also notes shortfalls in the nation's other armed services' urban operations readiness as appropriate.

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The material that follows will be of interest to armed forces personnel planning for or conducting operations and training in urban areas. Other governmental and nongovernmental agencies considering policies involving dedication of military assets to urban contingencies will similarly find this report of value in determining the risks and potential costs of such decisions.

CONTENTS

SUMMARY

Recent history provides evidence that U.S. participation in future urban military operations is inevitable; more distant past events reflect that these operations are extraordinary in their demands on ground and air forces. U.S. performances while completing the Haitian and Bosnian stability and support missions are encouraging. However, a review of recent history, service literature, doctrine, training results, and technological development regarding the U.S. Army's preparedness for combat in cities excites little confidence. This report is an overview of U.S. readiness to fight in urban areas. Though the primary focus is on the Army, the author includes observations on other of the country's armed services where appropriate. The document's concluding pages offer observations and recommendations addressing identified shortfalls.

Fighting in cities is often perceived as purely infantry work, but several recent writers on MOUT have demonstrated the falsity of such an assumption. A number of armor and aviation officers in particular have provided valuable readiness appraisals that call for improvements in their areas of expertise. These gentlemen found that both ground and air forces lack current doctrine, adequate training, and viable technologies to successfully fight in an urban environment. Their conclusions are borne out by a look at Army and Marine Corps doctrine. The former is woefully outdated, showing closer kinship to the virtually unconstrained operations of the Second World War than more recent actions in which strict rules of engagement (ROE) have been the norm. Marine Corps doctrine is considerably more current and furnishes units greater scope and depth of coverage with its guidance. It too, however, falls short of providing a

foundation for fighting when forces are significantly constrained by ROE. Marine Corps MOUT doctrine also shares with its Army counterpart an insufficiency of direction for urban operations that do not entail combat and activities at the operational level of war.

Urban operations training is constrained, but not hamstrung, by a lack of facilities designed specifically for company-size and larger unit MOUT exercises. There are currently too few large MOUT-specific sites; however, this deficiency can be partially overcome through the use of buildings on military installations and terrain walks in local urban areas. A reconsideration of extant MOUT facilities' scheduling may also provide improvements in force readiness.

Current and near-term military technologies do not provide the soldier and marine with the firepower, support, or command and control that close combat urban operations demand. Indirect fire, aviation, and fixed-wing air munitions lack the characteristics and accuracy necessary to ensure satisfactory support without causing unnecessary noncombatant and friendly casualties during the short-range fighting present in most urban engagements. Communications and navigation equipment at times suffers severe degradation in built-up areas. Though some future systems, notably the Objective Individual Combat Weapon (OICW) and Objective Crew Served Weapon (OCSW), will provide urban fighters with heretofore unavailable capabilities, other requirements remain unfulfilled. Several advanced weapons systems have design features that make them of less use in urban environments than were their predecessors.

It is apparent that the nation's armed services are not adequately prepared to conduct combat operations in cities without undue friendly force losses, noncombatant casualties, and collateral damage. The recommendations below (discussed further in the body of this report) provide a start for improving that readiness. The RAND Arroyo Center continues its research in this vital area.

Recommendations

- Adopt Marine Corps Warfighting Publication (MCWP) 3-35.3 as the initial foundation for Army and joint MOUT doctrine pending the creation of more comprehensive documents.

- Have the U.S. Army Center for Army Lessons Learned (CALL) publish a MOUT lessons learned bulletin that incorporates (but is not limited to) much of what is now spread over 40 of its various publications. Thereafter, CALL should continue to provide periodic urban operations bulletins to the joint and service communities.
- Encourage the conduct of service and joint exercises in urban areas of various sizes and character. These exercises would include on-site reconnaissance of notional operational areas and completion of the orders and IPB processes, to include war gaming and rehearsals.
- Include MOUT considerations in the development of new technologies. Emphasize that the dispersal considered by many to be an essential component of future warfare may be less pertinent to urban scenarios. There may therefore be a need to retain capabilities otherwise thought to no longer be of value.
- Allow organizations to use MOUT facilities for unit training when these sites are not committed to the support of formal Combat Training Center (CTC) rotations. Provide cadre at such facilities during both CTC rotations and other training to ensure that organizations have the expertise on hand to maximize the value of time spent in MOUT complexes.
- Provide for complete instrumentation of selected CTC MOUT facilities so as to provide accurate after-action reporting of a quality comparable to that now available in open terrain exercises at the NTC.

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Chapter One

INTRODUCTION

Few of today's military servicemen and women would argue against the value of history as a teacher. It is a lighthouse that helps to guide the soldier, sailor, marine, and airman in preparing for the future. It flashes from behind, lighting the path ahead, then casts that path in darkness as the arc of light sweeps over the surface, illuminating yet not fully defining what is real and what is shadow. The military man or woman must constantly complement these imperfect views with an assessment of present capabilities and future challenges so as to understand the relevance of previous events and be ready for pending operations. The U.S. military generally does a good job with this balancing act, but in the area of urban warfare it seems to be overlooking the lessons of history, current readiness shortfalls, and a future that offers not the potential but the assurance of both international and domestic urban operations. This paper is an analysis of U.S. military readiness to conduct successful military operations on urbanized terrain (MOUT). After a brief review of the topic's relevance to the nation's decisionmakers, the analysis proceeds with an overview of U.S. strengths and weaknesses in MOUT and concludes with an initial list of potential remedies.

That urban warfare has been extraordinary in its destructive character is common knowledge. Losses such as those during the World War II battle for Stalingrad, in which divisions lost over 50 percent of their strength in less than two weeks, have received widespread

attention in historical studies.[1] That the daily casualty rates for U.S. marines during 1968 fighting in Hue exceeded those of the vicious fighting on World War II Okinawa surprises few.[2] These losses were not simply the result of incorrect priorities or a failure to bypass cities. Political and military leaders understood the criticality of urban operations to wartime success and committed their soldiers, marines, sailors, and airmen to the environments despite its dangers.[3] The validity of their insights was borne out; not a few historians, political leaders, and military men have considered both Stalingrad and Hue the turning points of their respective wars.[4] Certainly the fighting in Berlin was the *coup de grâce* for the German army in 1945. But for two atomic bombs, the fall of Tokyo after the Americans' planned 1946 invasion of Honshu would likely have had a similar role for the war in the Pacific. The loss of eighteen U.S. Army soldiers in October 1993 in Mogadishu precipitated the withdrawal of American forces from UN operations in Somalia. Of the last 250 U.S.

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[1]William Craig wrote that Vasili Chuikov's Soviet 62nd Army

> had nearly disappeared. The hand-to-hand fighting for the factories had wiped out battalions, regiments, even entire divisions. Colonel Gorishny's 95th Division had to be divided into other units. The few men from Zholudev's elite 37th Guards [Infantry Division] went into the 118th Regiment of Colonel Ivan Ilyich Lyudnidov's 138th Division. Lyudnidov also received driblets from Gurtiev's 308th Division, which was massacred at the Barrikady [factory]. From groups which had come into Stalingrad seven to eight thousand strong, only a few hundred straggled away to fight under new commanders.

William Craig, *Enemy at the Gates: The Battle for Stalingrad,* New York: Dutton, 1973, p. 152. See also Vasili I. Chuikov, *The Battle for Stalingrad,* New York: Holt, Rinehart and Winston, 1964, pp. 139 and 170.

[2]Wounded in action (WIA) and killed in action (KIA) rates for USMC units in Hue were 17.5/1,000 strength and 2.2/1,000 respectively. The equivalent rates for Okinawa were respectively 6.57/1,000 and 1.35/1,000. See C. G. Blood and M. E. Anderson, "The Battle for Hue: Casualty and Disease Rates During Urban Warfare," Naval Health Research Center Report No. 93-16, 1993, p. 5.

[3]The author thanks LTG Christmas (USMC, ret.) for his citing what is at least one example of U.S. Navy support during urban fighting in the Vietnam War. Sailors navigating the Perfume River in LCU vessels resupplied American and Republic of Vietnam forces battling the enemy in 1968 Hue.

[4]For example, see William Craig, *Enemy at the Gates: The Battle for Stalingrad,* New York: Dutton, 1973; John Erickson, *The Road to Berlin,* London: Grafton, 1985; Michael Dewar, *War in the Streets: The Story of Urban Combat from Calais to Khafji,* Newton Abbot, UK: David & Charles, 1992; Theodor Plievier, *Stalingrad,* New York: Time Reading Program, 1948; and Russell W. Glenn, *Combat in Hell: A Consideration of Constrained Urban Warfare,* Santa Monica, CA: RAND, MR-780-A/DARPA, 1996.

Marine Corps overseas deployments, 237 have involved urban operations.[5]

These operations have often involved both regular and special operations forces. MOUT are not activities only for elite units; this was clearly demonstrated by events during Operation Just Cause in Panama and the relief efforts on October 3–4, 1993 in Mogadishu.[6] Nor are urban operations limited to those involving combat; ongoing commitments in Haiti and Bosnia reinforce the importance of cities to U.S. interests and emphasize that MOUT includes the full spectrum of military activities and not just those in which violence is the predominant characteristic. During the 1992 Los Angeles riots, units from the California Army National Guard demonstrated that urban operations readiness is also a requirement for units with domestic support roles and not solely for organizations deploying overseas.

Casualty rates such as those cited above lent wisdom to the Cold War doctrinal dictate that "commanders should avoid committing forces to the attack of urban areas unless the mission absolutely requires doing so."[7] Avoidance of urban fighting "unless the mission abso-

[5]Author interview with Gary G. W. Schenkel, Marine Corps Warfighting Lab, Quantico, VA, September 16, 1997.

[6]Though the fighting on October 3–4, 1993, in Mogadishu involved a number of special operations forces units, relief efforts, including the one that finally succeeded, were conducted by conventional forces from U.S. and other militaries.

[7]U.S. Department of Defense, Field Manual 100-5, *Operations*, Department of the Army, May 1976, p. 81. The Defense Science Board (DSB) made similar observations in a 1986 report, emphasizing that "avoiding urban involvements is by far the wisest course. Yet we also recognize that in the contemporary world, and the substantially urbanized Third World, U.S. policy may dictate military operations that cannot avoid cities." The DSB later addressed the issues again as the first and second items in its ten suggested "policy commandments" regarding U.S. foreign and military policy vis-à-vis urban areas. These commandments were:

> 1. Avoid Third World cities unless involvement is absolutely essential for the military mission and political objectives of the U.S. [and]
>
> 2. Recognize that many contingencies will make involvement essential and unavoidable.

Defense Science Board, *Conflict Environment Task Force (Implications of Third World Urban Involvement)*, Washington, D.C.: Office of the Under Secretary of Defense for Research and Engineering, June 1986, pp. v, 43. The authors also noted that "while U.S. capabilities . . . are potentially very substantial, those in being, ready-to-go are but a hollow facade" and recommended development of "more detailed" and "appropriate" urban operations doctrine (pp. ES-3, ES-5, 43). The writers of a 1994

lutely requires doing so" continues to be superb advice, especially in light of the exponential explosion of the numbers of people, vehicles, and structures in urban areas since the Second World War. Unfortunately, that explosion has only magnified the importance of urban areas as centers of government, commerce, culture, and transportation. More frequently than in the past, future missions will "absolutely require" military operations in cities and their environs. As the Iraqis learned in 1980 Khorramshahr, the Israelis in 1973 Suez City, and the Russians in 1995 Chechnya, the costs are high for a military force that is less than fully prepared.

This leads to the question of current U.S. Army readiness to conduct urban operations. Recent writings, a review of current doctrine, and unit training performances do not instill confidence that the force is prepared for the challenge. Yet all is not darkness. Operations in Haiti have been successful in achieving immediate national objectives, and the bulk of those operations were focused in Port-au-Prince or smaller Haitian built-up areas where so much of that nation's population resides. Efforts in Bosnia, with much of the Army's activity again centered in cities, proceed successfully. In short, military operations addressing recent support and stability missions in urban areas have been an area of U.S. accomplishment.

Evidence suggests the same would not be true were American forces to conduct *combat* operations in urban areas. The remainder of this initial analysis begins with a review of selected urban operations literature written by active duty officers. This overview is followed by an analysis of current MOUT doctrine, a consideration of Army and Marine Corps urban operations training, and a look at some of the technologies that may soon be available to U.S. military forces during the conduct of MOUT. The paper concludes with a summary of observations resulting from these brief surveys and several recommendations for improving the Army's readiness to conduct operations in this increasingly vital area.

DSB report similarly concluded that American military readiness to conduct MOUT was inadequate. They recommended specific technological and simulation developments for the armed forces as steps toward remedying identified shortcomings. Defense Science Board, *Report of the Defense Science Board Task Force on Military Operations in Built-Up Areas (MOBA)*, Washington, D.C.: Office of the Under Secretary of Defense for Acquisition and Technology, 1994, p. 57.

Chapter Two

A REVIEW OF SELECTED URBAN OPERATIONS LITERATURE

Somewhat surprisingly, it is the armor community that has of late been most active in considering the implications of urban combat operations for its branch. Michael J. Dormeyer analyzed the "Adequacy of Doctrine for Armor in MOUT" in a 1983 master's thesis done at the U.S. Army's Command and General Staff College. His views are interesting in light of their being written only four years after publication of what is still the most recent version of the Army's combined arms MOUT doctrine manual, Field Manual (FM) 90-10, *Military Operations on Urbanized Terrain.* Considering the readiness of his branch to conduct MOUT, Dormeyer concluded that "we do not have the doctrine that we need to do the job properly today. We can not afford to wait too many tomorrows before providing that doctrine." His recommendations included the addition of separate chapters on MOUT in rewrites of FMs 71-100 *(Division Operations),* 71-1 *(Tank and Mechanized Infantry Company Team),* 71-2 *(The Tank and Mechanized Infantry Battalion Task Force),* and 71-3 *(Armored and Mechanized Infantry Brigade).* He suggested that there be a greater focus on armored operations in FM 90-10.[1] Dormeyer went on to highlight the need for inclusion of MOUT during tank gunnery training and testing. Gunnery, he wrote, should include consideration of urban target acquisition, crew drills in cities, short-range gunnery techniques, urban firing positions, the effects of vari-

[1]Michael J. Dormeyer, *Adequacy of Doctrine for Armor in MOUT,* master's thesis, Command and General Staff College, 1983, p. 103.

ous ammunition types on structures, and maneuver and survival techniques during fighting in built-up areas.[2]

David B. Hain renewed the call for better armor MOUT preparedness just over a decade later. Hain found that

> the Army's current manuals, taken as a whole, provide the broad doctrinal "what to do," but not the implementing tactics, techniques, and procedures—the "how to" for the use of armor in MOUT at the battalion task force level and below. The tactics, techniques, and procedures in the current manuals are not sufficient to allow leaders to quickly transition to urban fighting.

He, like Dormeyer before him, found extant manuals lacking. His review of armor and mechanized doctrinal manuals revealed that they only addressed "MOUT in their appendixes on the integration of heavy and light forces," and even there "the current doctrine is difficult to apply with current force structure and organizations." Further, these "manuals suggest that heavy and light units do not normally task organize below the battalion level. This does not meet the requirements of many urban battlefields."[3] Though both infantry and armor doctrine authors recognized the necessity of combined arms in MOUT, Hain found that branch guidance in their manuals was contradictory.[4] He additionally recommended that future doctrinal efforts include movement techniques and specific formations for infantry fighting vehicles (IFV) and tanks during MOUT, guidance on the provision of covering fires for dismounted infantry without endangering those forces with sabot debris, an updating of the outdated FM 90-10, and more comprehensive coverage of urban operations in many other Army doctrinal publications.[5]

A third call for change from the armor community came with Curtis A. Lapham's 1996 *Colossus on Main Street: Tactical Considerations of*

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[2]Ibid., p. 104.

[3]David B. Hain, *Sufficiency of Doctrine for the Use of Armor in Military Operations on Urban Terrain,* monograph, School of Advanced Military Studies, 1994, p. 104.

[4]Ibid., p. 105.

[5]Ibid., pp. 107–118. "Sabot debris" are fins that stabilize the round immediately after firing. These fins separate from the round upon exit from the barrel and can injure or kill persons within a given distance of the discharging weapon.

Heavy Armor and Future MOUT Doctrine. Taking a cue from the then recently revised infantry MOUT FM 90-10-1, *An Infantryman's Guide to Combat in Built-up Areas,* Lapham concluded that "the Armor School must develop a 'How to Fight' manual for tankers and designate it FM 90-10-2, *A Tanker's Guide to Combat in Built-up Areas.*"[6]

Tankers were not alone in their calls for change. Aviators in both the U.S. Army and Marine Corps have also provided valuable analyses. Army aviation officer Timothy A. Jones outlined the capabilities of attack helicopters in urban fighting in his 1996 *Attack Helicopter Operations in Urban Terrain.* He cited the psychological effects of helicopters on Panamanian enemy forces during Operation Just Cause combat actions in 1989 and noted that Cobra attack helicopters provided needed fire support in instances where strict rules of engagement (ROE) precluded the use of indirect fires. Jones found his own branch's doctrinal manuals of little help and noted "it is ironic that the best Army aviation planning document for MOUT is in an infantry manual [FM 90-10-1]."[7]

The USMC's Jon M. Davis's *Urban Offensive Air Support: Is the United States Military Prepared and Equipped?* is an analysis of all American services' MOUT offensive air support (OAS) capabilities. Davis noted that "OAS has been a key component of our ground-combat fire-support. Our current weapons work very well in rural environments but have limited applicability in urban environments. This deficiency represents our *critical vulnerability* in conducting urban ground combat operations."[8] His work is notable for its joint aviation perspective and recognition that minimizing noncombatant casualties and collateral damage is a requirement of modern MOUT.

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[6]Curtis A. Lapham, *Colossus on Main Street: Tactical Considerations of Heavy Armor and Future MOUT Doctrine,* monograph, School of Advanced Military Studies, 1996, p. 39. FM 90-10-1 was rewritten in 1993; a change was published in 1995.

[7]Timothy A. Jones, *Attack Helicopter Operations in Urban Terrain,* monograph, School of Advanced Military Studies, 1996, pp. 37–38.

[8]Jon M. Davis, *Urban Offensive Air Support: Is the United States Military Prepared and Equipped?* thesis prepared for the U.S. Marine Corps Command and Staff College, April 18, 1995, p. i. The author thanks Floyd Usry, USMC, for bringing this reference to his attention.

The major lessons he extracted from recent urban aviation operations include:

- "Non-precision weapons have little utility in urban environments,"
- "Delivery platforms incapable of night-targeting and self-designation will have little utility in urban environments,"[9]
- "Hellfire and TOW were ineffective when used against hardened urban structures,"
- "Small arms and other ground attack weapons (RPGs) can create prohibitive interference for attack helicopter missions in urban operations,"[10]
- "The possible threat to rotary-wing assets requires that fixed-wing attack assets be able to conduct CAS [Close Air Support] in an urban environment."[11]

Davis further noted that few helicopter or fixed-wing munitions have capabilities that allow their effective use during MOUT, and that "at present, no procurement efforts are underway to provide the operating forces with low-yield OAS weapons that fixed-wing attack aircraft can use in urban environments."[12]

Two years before, infantry officer Charles A. Preysler had noted that the doctrinal guidance provided for the Army's soldiers was grossly inadequate. In his 1994 *Going Down Town: The Need for Precision MOUT,* Preysler concluded that "FM 90-10, which was last updated in 1979, is in need of immediate attention.... Currently the U.S. has a hollow and fragmented MOUT doctrine."[13]

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[9]Ibid., p. 50.

[10]Ibid., p. 58.

[11]Ibid., p. 59.

[12]Ibid., p. 88. Original in italics. An exception, the JSOW (Joint Stand-off Weapon) Unitary variant, has an estimated unit cost of $400,000.

[13]Charles A. Preysler, *Going Down Town: The Need for Precision MOUT,* monograph, School of Advanced Military Studies, 1994, p. 30.

Chapter Three

THE STATUS OF DOCTRINE

These calls for improved doctrine have been only partially met. The most serious continuing shortfall is the persistence of the 1979 edition of FM 90-10 as the primary urban operations manual for the U.S. Army. In theory, FM 90-10 should serve as the combined arms foundation for urban operations doctrine in all Army branch manuals. Conceivably it could serve as the basis for joint doctrine as well. Its dated condition ensures that it does neither. Discussion of branch operations during MOUT is cursory. Coverage of joint activities such as provision of fire support lacks mention of what USN and USMC forces can provide. An appendix dedicated to weapons effects in cities covers only infantry weapons; the appendix on armor operations during MOUT is a mere two pages long.

The manual has virtually no discussion of the implications of or means for handling noncombatants during urban operations, nor of rules of engagement that the presence of noncombatants is likely to precipitate. Its descriptions of building and street patterns fail to include types likely to be found in Third World cities. They instead reflect the general overemphasis on northwestern European urban operations that characterizes the work. Slums and temporary structures constructed from corrugated metal and other debris go unrecognized.[1] The enemy used in discussions of offensive and defensive operations is the now-defunct Soviet motorized rifle battalion; con-

[1]A more thorough classification of "urban terrain zones" was completed by Richard A. Ellefsen in *Urban Terrain Zone Characteristics*, Technical Memorandum 18-87, Aberdeen Proving Ground, MD: U.S. Army Human Engineering Laboratory, September 1987, p. 58.

sideration of Third World armies or irregular threats such as those encountered in Panama, Mogadishu, Beirut, Khorramshahr, and Chechnya is lacking. Further, a manual nearly twenty years old can not present the lessons learned from urban operations during the past two decades. Fortunately, in December 1997 the director of the U.S. Army's Combined Arms Doctrine Directorate ordered the rewriting of FM 90-10.[2]

The 1993 FM 90-10-1 is a product of the U.S. Army Infantry School. Its coverage of combined arms operations in many instances is superior to that of the FM 90-10 that should stand as its guide. Though still heavily biased toward what the manual labels "high intensity MOUT," FM 90-10-1 recognizes the likelihood that constrained urban operations will occur. The manual introduces the concepts of "precision MOUT" and "surgical MOUT" to respectively encompass those operations during which forces are constrained to operate under stringent ROE or in which special operations forces play a predominant role. This infantry manual has a more comprehensive coverage of weapons effects in urban environments than does FM 90-10. It also recognizes the importance of training soldiers for combat at the short ranges habitually encountered during city fighting.

However, Field Manual 90-10-1 has room for improvement. It better recognizes the presence of the urban shanty towns characteristic of many Third World city slums, but it fails to adequately address details of these environments that are pertinent to military operations. These include structure walls made of materials with little capability to stop high-velocity rounds. During fighting in such less substantial buildings, rifle, machine gun, and other weapons rounds and fragments pose a greater threat to noncombatants and friendly soldiers. Other features overlooked in FM 90-10-1 include the greater likelihood that slum areas are not served by adequate electrical, water, or sewage infrastructure and thus may have a higher incidence of disease. The manual's coverage of noncombatant considerations is limited, in particular with regard to its discussion of the intelligence preparation of the battlefield (IPB) process. There is little discussion

[2]E-mail to author from Colonel Clint Ancker, Director of the U.S. Army's Combined Arms Doctrine Directorate, June 1, 1998.

of operations other than those involving combat. Finally, the manual suffers from being what it was designed to be: an infantryman's guide to MOUT. As highlighted by Timothy Jones above, the manual can serve as a guide for a branch other than infantry (in Jones's case the branch was aviation); it does not, however, represent the comprehensive combined arms MOUT doctrine the Army needs.

Other Army doctrinal manuals provide little for the user seeking guidance in preparing for or conducting urban operations. FM 100-5 *(Operations),* FM 100-15 *(Corps Operations),* FM 71-100 *(Division Operations),* and most 7- series (infantry) and 71- series (armored and mechanized infantry) manuals do little other than recognize the challenges posed by urban terrain and make passing mention of particular problems associated with MOUT.[3] One exception is FM 71-1 *(Tank and Mechanized Infantry Company Team,* published January 26, 1998) with its Appendix I (Military Operations in Urban Terrain). Though much of the appendix lacks the detail necessary for the manual to be a truly valuable aid in preparing for urban operations, it contains several observations of substance.

Joint doctrine on MOUT is very limited; consideration of multinational operations is effectively nonexistent. The 1993 Joint Publication (JP) 3.0 *(Doctrine for Joint Operations)* does not discuss urban operations, and the 1996 JP 3-10.1 *(Joint Tactics, Techniques and Procedures for Base Defense)* follows the trend found in many Army manuals by doing little other than recognizing the difficulties that operating in built-up areas presents to a military force.[4] The joint community's recently initiated efforts to develop urban operations doctrine should address these shortfalls.

The best combined arms urban operations manual in the U.S. military is Marine Corps Warfighting Publication 3-35.3, *Military Opera-*

[3]The Army's 1994 edition of FM 100-23 (*Peace Operations*) makes no mention of urban operations.

[4]The same is true of the following sample of joint manual current editions, none of which makes any more than passing mention of MOUT: JP 3-07 *(Joint Doctrine for Military Operations Other Than War),* JP 3-08 *(Interagency Coordination During Joint Operations),* JP 4-0 *(Doctrine for Logistic Support for Joint Operations),* JP 4-02 *(Doctrine for Health),* and JP 4-04 *(Joint Doctrine for Civil Engineering Support).*

tions on Urbanized Terrain, published in April 1998.[5] In addition to covering the topics included in FM 90-10, it provides often insightful guidance of value to tactical leaders at all levels. Discussion of weapons effects on urban structures is frequently detailed and includes most major U.S. military engagement systems (although material on aviation and fixed-wing air munitions is superficial). However, more attention to operations under strict rules of engagement is necessary; there is little on MOUT involving other than combat operations; and urban considerations at the operational level of war require far greater coverage. Even given these limitations, MCWP 3-35.3 is an initial step in the right direction; the manual could be used in the future development of joint and other service urban operations doctrine. It may also be prudent to adopt MCWP 3-35.3 as joint and other service doctrine during these updating processes.[6]

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[5]U.S. Department of Defense, Marine Corps Warfighting Publication (MCWP) 3-35.3, *Military Operations on Urbanized Terrain (MOUT),* Department of the Navy, April 1998.

[6]Unsurprisingly, the wording of the manual is frequently Marine-specific. A rapid editing of the work could readily make it acceptable as an interim joint publication.

Chapter Four

MOUT TRAINING

Training is intimately related to doctrine. Without sufficient doctrine, service-wide training lacks a basis for commonality in tactics, techniques, procedures, and standards.

That Army units are not proficient in MOUT is evident from their performance during CTC training rotations. A considerable majority of units completing Shugart-Gordon MOUT facility rotations at Fort Polk's Joint Readiness Training Center during the latter half of 1997 demonstrated critical shortcomings.[1] As few as eighteen opposing force defenders successfully held up attacks by multiple companies in MILES mock combat scenarios. Deficiencies ran the gamut from improper actions on contact by individual soldiers to commanders' and staffs' inability to plan effectively. Unsurprisingly, areas neglected or only poorly covered in doctrinal manuals were frequently those in which units were weakest. A further deficiency is the offensive character of virtually all MOUT training scenarios. Defensive MOUT receives little attention.

The USMC partially compensated for its previous lack of sufficient MOUT doctrine by supplementing it with expertise from outside the Marine Corps and observations made during its own operations and training. Selected marines underwent instruction at the British Army's Copehill Down MOUT training facility, received training from a variety of U.S. law enforcement organizations and fire departments, and attended the USMC's own Marine Expeditionary Force

[1]Author interview with Michael Browder, U.S. Army Joint Readiness Center, Fort Polk, LA, September 17, 1997.

MOUT Instructors Course. These individuals then applied their many lessons learned by assisting during unit training and by helping to create a program of instruction used for testing MOUT concepts.[2]

Regardless of the service, MOUT preparation is hindered by a lack of facilities in which to conduct tactical training for company-size or larger units. The National Training Center (NTC) at Fort Irwin has no MOUT site at all until a new one is constructed to replace the one that was lost due to environmental considerations.[3] Command Training Center (CTC) facilities that do exist are often used less for commanders' development of their unit's expertise than during rotations when organizations pass through training centers.

This lack of larger facilities can to some extent be overcome through the imaginative use of what resources are available on posts throughout the United States and on installations overseas. Employment of abandoned buildings for training on entry and room clearing techniques is often possible. A unit can use its own barracks to demonstrate proper methods. Similarly, commanders and staffs can conduct leader training using on-post structures or terrain walks in nearby towns and cities.

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[2]G. W. Schenkel interview and G. W. Schenkel e-mail to author, June 5, 1998.

[3]Rick Travis, National Training Center, Fort Irwin, CA, telephone interview with author, September 30, 1997. An interesting concept for aviator MOUT training is under consideration for construction near Yuma, AZ. A 200–250 "building" urban complex would be replicated, likely with structures built using shipping containers, for use in fixed and rotary-wing pilot training. Floyd Usry, USMC instructor, telephone interview with author, November 26, 1997.

Chapter Five

TECHNOLOGY AND MOUT

The difficulties an urban environment presents for the employment of some weapons systems are fairly well known. Artillery and other indirect fire systems are impractical in many situations; munitions with area rather than precision effects, round trajectories that cause preliminary impacts on structures near targets, and concussion danger to soldiers and marines firing from enclosed areas are but a sample of the problems that confront commanders during urban combat operations.[1] Enemy personnel firing from within buildings are difficult to detect and often present a rifleman a very small target for only a brief time. Vehicles are vulnerable to mines, rocket-propelled systems, and other weapons at the short ranges confronted on city streets; they must therefore be accompanied by dismounted infantry who in turn are exposed to fire from several directions and multiple elevations. Building interference with FM and GPS communications makes routine command and control functions difficult. Some near-term technologies offer relief from selected problems associated with MOUT; other systems under consideration or recently fielded tend to further restrict commanders' flexibility during operations in cities. This section briefly considers an exemplary sampling of technologies from both groups without any claim of comprehensively covering the myriad of systems in use, under consideration, or envisioned for the future.

[1]For example, a TOW missile operator cannot obtain control of a fired round before it travels a minimum of 500 meters (just under a third of a mile). Davis, *Urban Offensive Air Support*, p. 86.

The Objective Individual Combat Weapon (OICW, to replace the M16A2, M4, and M203 circa 2008) and Objective Crew Served Weapon (OCSW, the replacement for the 40mm MK19, .50 caliber M2, and possibly the 7.62 M60 in the same time frame) are being developed with MOUT in mind.[2] The OICW will include a laser range finder and air-bursting munitions that allow the engagement of targets positioned behind cover or within rooms. Its ammunition may also include nonlethal munitions of value in efforts to minimize noncombatant casualties. The OCSW will weigh less than current crew-served weapons and will utilize lighter and smaller rounds. Available munitions will also include a high explosive air-bursting round.

Other systems similarly offer soldiers and marines capabilities that will both enhance their effectiveness and increase survivability during future MOUT scenarios. Small, remotely piloted vehicles hold potential for improved intelligence collection;[3] a number of personal protection systems are being considered to guard against the dangers of munitions and injury due to debris and glass.[4] Many nonlethal ammunition efforts[5] and improved electronic warfare and

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[2]Information on these systems has been taken from the following sources: "Objective Individual Combat Weapon (OICW)—'No Place to Hide,'" and "Objective Crew Served Weapon (OCSW)—'Lethality for the 21st Century,'" descriptive material provided by the U.S. Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ, undated. Also see *Joint Service Small Arms Master Plan*, Joint Service Small Arms Program (JSSAP), Picatinny Arsenal, NJ, August 6, 1997.

[3]For example, see Stacey Evers, "ARPA Pursues Pocket-Sized Pilotless Vehicles," *Jane's Defence Weekly*, Vol. 25 (20 March 1996), p. 3; "Pointman Unattended Ground Vehicle," MOUT Technology Data Sheet prepared by CECOM RDEC NVESD, Fort Belvoir, VA; "UAV Riot Control Dispersal," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ; and Warren E. Leary, "Tiny Spies to Take Off for War and Rescue," *The New York Times*, November 18, 1997, pp. B-9 to B-10.

[4]Such systems include the "Ballistic and Nonballistic Face and Body Shields and Ballistic Shinguard," MOUT Technology Data Sheet prepared by U.S Army Natick Labs, Natick, NH; "5.56mm Controlled Penetration Ammunition," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ; and "Body Armor," MOUT Technology Data Sheet prepared by the U.S. Secret Service, Washington, D.C. Note that controlled penetration munitions initiatives will benefit efforts to reduce both friendly force and noncombatant casualties.

[5]See "Lethal/NL Weapon System [Variable Velocity Barrel System (VVBS)]," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ; "Non Lethal Modular Crowd Control Munition," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ; "Combination Lethal/Non-Lethal Multi-Shot Weapon," MOUT Technology Data Sheet prepared by Army Research Lab, Aberdeen

communications initiatives[6] are pertinent to military operations in cities. Other potentially beneficial technologies include capabilities to deny human passage through selected structures (thereby allowing friendly forces to move through city streets with reduced danger of enemy engagement);[7] radar and other scanning apparatus to provide an ability to "see through walls;"[8] and munitions modified to provide for greater accuracy and/or reduced undesirable weapons effects.[9]

In some instances, however, new systems or concepts act to deny capabilities older weapons provided. Top attack anti-tank munitions such as that fired by Javelin lack the direct fire projectile profile necessary to use the weapon for wall or other barrier penetration during movement through urban areas. The replacement of the M60 main battle tank by the M1 Abrams resulted in the loss of an effective means for dismounted troops to communicate with crew members "buttoned up" in the latter (as the M1 has no vehicle-mounted telephone for use by persons outside the vehicle).[10] Though technology

Proving Ground, MD; and "Non Lethal 40mm MK19 Grenade," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ.

[6]See "Electric Discharge Vehicle Stopper," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ; "Integrated Ballistic Helmet," MOUT Technology Data Sheet prepared by CECOM RDEC NVESD, Fort Belvoir, VA; and "Multi-function Combat ID," MOUT Technology Data Sheet prepared by CECOM RDEC NVESD, Fort Belvoir, VA.

[7]See "Rigid Foam," MOUT Technology Data Sheet prepared by ERDEC SCBRP-RTB, Aberdeen Proving Ground, MD; and "Aqueous Foam Inflation Barrier," MOUT Technology Data Sheet prepared by ERDEC SCBRP-RTB, Aberdeen Proving Ground, MD.

[8]See "Plastec Particulate Explosives Detector," promotional material prepared by Graseby Security, Watford, Hertsfordshire, UK; and "The Hand Held Motion Detection Radar, MDR-1," promotional material prepared by Hughes, Rancho Cucamonga, CA.

[9]For example, see "2.75 Inch Rocket MOUT Warhead, RA-79," MOUT Technology Data Sheet prepared by U.S. Army ARDEC, Picatinny Arsenal, NJ. However, Davis wrote that "2.75 and 5.00 inch rockets have a nominal dispersion of 12 to 14 milliradians rendering them too inaccurate for discriminate urban employment." Davis, *Urban Offensive Air Support,* p. 83.

[10]The 1997 FM 71-1 Final Draft states that an M1 "tank can be outfitted with an external phone hookup for communications with accompanying infantry." However, this capability applies only to specific scenarios during which the tank is stationary. Department of the Army, Field Manual 71-1, *Tank and Mechanized Infantry Company/ Team* (Final Draft), May 1997, p. I-4; and e-mail message from SFC Gregory S. Burbo, Doctrine Writer and Training Developer, Platoon and Company Team Branch, Directorate of Doctrine and Training Development, U.S. Army Armor Center, Fort Knox, KY, October 15, 1997. Some leaders do not believe a tank-mounted phone is necessary, as

is in general an area of promise for those having to conduct operations in urban areas, these examples demonstrate the necessity to consider the effects of new systems' characteristics on MOUT.[11] Furthermore, bureaucratic constraints that act to reduce the full benefit that friendly forces could derive from existent technologies should be reviewed. Classification restrictions, for example, have precluded the full exploitation of overhead photography's considerable potential to assist command and control during operations in cities.[12]

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the dismounted leader working with the tank can use his radio for the infantryman-tank link. Such assumptions overlook the likelihood that the dismounted element has only one radio. If the radio is on a frequency allowing communication with the tank, the infantryman loses contact with his higher headquarters; it is unlikely that a platoon leader or company commander would allow the use of his unit's command frequency for low-level infantry-tank traffic. Such a solution is of dubious value in any case given that several units may be conducting dismount-tank operations simultaneously and would therefore overtask a single frequency. Technologies under development that allow users to monitor multiple frequencies may help to overcome this problem in the future, but no near-term solution appears to be at hand.

[11]Major Steve Goligowski was more succinct in his call for this cross-checking of project technologies: "There is a need to relook both our current inventory of weapons and our weapon procurement procedures to insure the army has weapons available that are suitable for use in MOUT.... There is no systematic review and evaluation for effectiveness in urban environments." Steven P. Goligowski, *Future Combat in Urban Terrain: Is FM 90-10 Still Relevant?* monograph, School of Advanced Military Studies, December 17, 1994, pp. 37–38.

[12]Classification of overhead photographs hindered their use during operations in 1993 Mogadishu. See Russell W. Glenn, *Combat in Hell: A Consideration of Constrained Urban Warfare,* Santa Monica, CA: RAND, MR-780-A/DARPA, 1996, p. 33.

Chapter Six

OBSERVATIONS

The cited doctrinal and other preparedness shortcomings are not insurmountable. Modifications to existing doctrine through the use of historical readings and documents available from the U.S. Army Center for Army Lessons Learned (CALL) can provide forward-looking units a foundation for MOUT Standing Operating Procedures (SOPs) and training. CALL's MOUT lessons are unfortunately dispersed throughout many of their bulletins and other materials, but searching their Web site provides items of value. These items include guidance for several branches of service and elements of generic benefit such as a physical fitness program designed to address the demands of urban operations requirements.[1] CALL should create a MOUT lessons learned publication and continue to prepare such documents periodically for the joint and service communities.

There are signs that some are recognizing the inevitability of future urban operations and are taking steps to better prepare the Army. The revision of FM 90-10-1 and its subsequent change despite resistance was one such positive step; the revising of FM 90-10 is another. Continued funding of improvements at the Fort Polk MOUT complexes, though limited, will give selected units at least minimal familiarity with the challenges they might soon confront in deployments to foreign or domestic cities. Including terrain walks in downtown Columbus, Georgia as part of the Infantry Officers Advanced Course curriculum shows a realization that successful MOUT training is not confined to specially designed facilities such as those found in very

[1]See Robert Murphy, *Battle-focused Physical Training (BFPT)*, Center for Army Lessons Learned, January–February 1997. The CALL Web site address is http://call.army.mil/call.html.

limited numbers throughout the world. USMC Urban Warrior experiment events scheduled for 1999 and several Army and joint exercises similarly reflect greater awareness of the need to prepare for operations in cities worldwide.[2] Increased National Ground Intelligence Center interest in urban operations and ongoing joint Advanced Concepts Technology Demonstration initiatives likewise hold potential for readiness improvements.[3] Significantly, in March 1998 the U.S. Army Deputy Chief of Staff for Operations and Plans directed a comprehensive review of MOUT doctrine, facilities, training aids, and simulations. Finally, the recognition that urban terrain is a likely future contingency is evident in several critical weapons programs that will greatly influence 21st-century soldiers' and marines' ability to succeed and survive in that environment.

These are but limited steps toward a desired end state of MOUT readiness, however, linked more by a commonality of independent good intentions than by coordinated programs or an overriding concept. Urban operations doctrine is outdated; efforts to redress the problem lack the combined arms, joint, and multinational robustness essential to success during future urban operations, especially those constrained by stringent ROE and the presence of large numbers of noncombatants. MOUT training suffers from this lack of effective doctrine and the failure to emphasize urban operations. Too many future technologies neglect the demands that urban areas place on soldiers and marines operating in those environments; the specialized character of those systems limits their applicability for use in built-up areas. In short, the U.S. military as a whole is moving too slowly toward readiness in the conduct of MOUT.

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[2]Previous exercises have involved MOUT considerations, but the demands of urban operations have been poorly replicated or the exercise has been terminated before significant MOUT play developed. Initiatives by the U.S. Department of Defense National Ground Intelligence Center (NGIC) are under way to expand the role of MOUT in future exercises. From comments by Ernie H. Gurany, National Ground Intelligence Center, during his October 16, 1997 visit to RAND, Santa Monica, CA, October 13, 1997, and the NGIC-DIA Urban Warfare Workshop attended by the author, October 21, 1997.

[3]Among the recommendations from the 1994 Defense Science Board Task Force on Military Operations in Built-up Areas was a call for the Secretary of Defense and Chairman of the Joint Chiefs of Staff to "request that the Under Secretary of Defense (Acquisition and Technology) establish an Advanced Concepts Technology Demonstration (ACTD) program for MOBA." Defense Science Board, *Report of the Defense Science Board Task Force on Military Operations in Built-Up Areas (MOBA)*, p. 3.

Chapter Seven

RECOMMENDATIONS

The following recommendations address existing shortfalls in U.S. Army readiness to successfully conduct urban operations. In many cases they also apply to the nation's other armed services and unified commands. Further RAND efforts are ongoing to gain a better understanding of MOUT's growing challenges and develop solutions to these challenges in both the near term and more distant future.

1. Adopt MCWP 3-35.3 as the initial foundation for Army and joint MOUT doctrine pending revision or creation of more comprehensive documents. The U.S. Army should rewrite FM 90-10 as a truly combined arms doctrinal guide, replacing the current edition with the Marine publication until the new manual is completed. Any rewritten manual, whether joint or single service, should include noncombatant considerations throughout and stress that MOUT include the full scope of military operations at the tactical, operational, and strategic levels. Supporting subordinate doctrine should be written in a timely manner.

2. Have CALL publish a MOUT lessons learned bulletin that incorporates (but is not limited to) much of what is now spread over 40 of its various publications.[1] Existent infrastructure and proven capabilities make CALL a logical choice for designation as the Department of Defense center for MOUT lessons learned. In this role the organization would integrate joint urban operations observations

[1]A CALL bulletin on MOUT was scheduled for publication in 1994, but the document was never completed. Jim Walley, U.S. Army Center for Army Lessons Learned, telephone interview with author, November 5, 1997.

and could use a "guest author" format in a periodic bulletin to obtain further input from multinational and other representatives with pertinent insights. The recent joining of CALL and the Foreign Military Studies Office (FMSO), also located at Fort Leavenworth, Kansas, further makes such a designation attractive as it facilitates drawing on the latter organization's exceptional work on Russian operations in Chechnya.[2] A CALL bulletin should also include observations from Bosnia and Haiti to both take advantage of the most recent U.S. Army MOUT experiences and emphasize that MOUT includes more than combat operations.

3. Encourage the conduct of service and joint exercises in urban areas of various sizes and character. These exercises would include on-site reconnaissance of notional areas of operation and completion of the orders and IPB processes to include war gaming and subsequent rehearsals. Units could thereafter walk the urban terrain a second time with both Blue and Red forces represented. Such exercises are appropriate at both the tactical and operational levels and should include offensive, defensive, stability, and support mission scenarios.

4. Include MOUT considerations in the development of new technologies. Emphasize that the dispersal considered by many to be an essential component of future warfare by many thinkers may be less pertinent to urban scenarios and may therefore require retention or introduction of capabilities otherwise thought to be no longer necessary, e.g., a means for dismounted infantry to speak with tanks and IFV when the latter are "buttoned up."

5. Make MOUT facilities available for training in addition to their use by organizations during formal rotations at Combat Training Centers. Units should come to such sites only after completing an approved sequence of basic skills training and other preparation at home station. Provide training site cadre during all usage to ensure that organizations have the expertise on hand to maximize the value of time spent in MOUT facilities. Cadre should work through unit

[2]For example, see Timothy L. Thomas, "The Caucasus Conflict and Russian Security: The Russian Armed Forces Confront Chechnya III. The Battle for Grozny, 1–16 January 1995," *Journal of Slavic Military Studies*, Vol. 10 (March 1997), pp. 50–108.

chains of command during the development and conduct of on-site training.

6. Provide for complete instrumentation of selected Combat Training Center MOUT facilities. This will provide accurate after-action reporting of a quality comparable to that now available in open terrain exercises at the NTC.

Chapter Eight

CONCLUSION

The 1994 Defense Science Board urban operations task force's call for MOUT improvements is all the more notable because of the limited progress that has been made since the release of its report and the similarity of its observations to other unheeded recommendations made during the decade preceding that call. The task force's summary is as pertinent today as it was in these earlier years:

> Our current [MOUT] capability was developed in large part for a massive, rural war in Central Europe. Since the future looks much different, new capabilities will need to be developed. To do less risks highly visible casualties and a corresponding loss of military credibility and national prestige.[1]

[1]Defense Science Board, *Report of the Defense Science Board Task Force on Military Operations in Built-Up Areas (MOBA)*, p. 9.

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